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*D. C. Mendenhall
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his friend
E. L.*

AN ACCOUNT

OF THE

INFLAMMATORY BILIOUS FEVER,

WHICH PREVAILED

IN THE SUMMER AND FALL OF 1804,

IN THE

COUNTY OF LOUDOUN, VIRGINIA.

BY JOHN ESTEN COOKE, A. M.

OF VIRGINIA;

HONORARY MEMBER OF THE PHILADELPHIA MEDICAL SOCIETY;

AND MEMBER OF THE AMERICAN WHIG SOCIETY

OF NASSAU HALL.

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AN
INAUGURAL ESSAY,
FOR
THE DEGREE
OF
DOCTOR OF MEDICINE,
SUBMITTED
TO THE EXAMINATION
OF THE
REV. J. ANDREWS, D.D. PROVOST, PRO. TEM.
THE
TRUSTEES, AND MEDICAL PROFESSORS
OF THE
UNIVERSITY OF PENNSYLVANIA,
ON THE FIFTH DAY OF JUNE, ONE THOUSAND EIGHT
HUNDRED AND FIVE.

TO THOMAS SIM, M. B.

OF

LOUDOUN, VIRGINIA.

THIS ESSAY is inscribed as a tribute of respect for his medical talents, and of gratitude for the care with which he endeavoured to inculcate just principles of medical science, on the mind of his obliged friend, and pupil,

JOHN E. COOKE.

TO JOHN ESTEN, M. D.

OF THE

ISLAND OF BERMUDAS.

PERMIT me thus publicly, to express the high opinion I entertain of that worth which renders you so dear to your friends; of those talents unfortunately rendered unprofitable to your fellow citizens by the unremitting violence of one of those diseases, which still remain monuments of the imperfection of the science of medicine.

Your affectionate Nephew,

JOHN ESTEN COOKE.

AN
ACCOUNT
OF THE
INFLAMMATORY BILIOUS FEVER, &c.

WERE I to consult my own inclination, I should not, at so early a period of life, publish my sentiments on any subject. Having as it were but just entered the threshold of science, I feel the want of experience and a more mature judgment, properly to digest the principles I have been taught in this University. It is therefore with great diffidence and even reluctance, that in this instance I yield obedience to its laws....the more so, as there is not in the long catalogue of diseases which afflict the human race, one, on which volumes have not been written; one, on which I could hope to offer any thing new. It is not therefore with such an expectation, that I have

chosen bilious fever for the subject of my inaugural dissertation ; for on no one have splendid talents been more successfully employed. But having in the summer and autumn of 1804 assisted my friend, Doctor Sim of Leesburg, in his extensive practice ; and having carefully marked the rise and progress of the bilious fever, which spread terror and desolation through the populous county of Loudoun, I hope a communication of my observations will not be unacceptable. More especially, as so violent a grade of this disease has hitherto seldom visited the interior of our country, and perhaps in no instance, so healthy and hilly a country as Loudoun ; the inhabitants of the low range of mountains extending through it, which is thickly settled and well cultivated, having suffered more by the fever, than the cultivators of the rich low grounds on the banks of the Potowmac.

It may not be improper to premise a few remarks on the weather, and the diseases which preceded the fever.

The spring was cold and wet ; vegetation was more backward than usual. The blossoms of the peach tree began to open on the 17th of April ; of the cherry, sassafras, and dogwood trees,

on the 22nd and 23rd; and of the apple tree on the 28th of April.

The month of May was cooler than usual; there were fourteen days of rain; the wind generally from the westward. The people were for the most part healthy; diseases were not of a very inflammatory grade, but few cases requiring the use of the lancet. Early in the month, the Potowmac overflowed its banks, covering many hundred acres of grain.

June was also cooler than usual; there were twenty days of westerly winds, and twenty days of rain, which greatly damaged the growing wheat and corn. The low lands on the Potowmac were again flooded, whole fields of grain being entirely covered. Diseases were rather more inflammatory than in May. Two cases of tetanus occurred; one terminated fatally, the other in health.

A few days in the beginning of July were extremely sultry; the harvest people suffered greatly; but in general the weather was not warmer than usual. There were ten days of rain; on the 31st a severe storm from the northwest of rain and hail of a very large size. Diseases now became more inflammatory, very few cases

of intermittents occurring. About the 20th of this month, the fatal fever commenced its destructive career.

August was very warm, many days extremely so ; the wind was mostly from the east ; there were nine days of rain. The fever became general ; whole families were seized....the labours of the field were in a great measure suspended....it became the indispensable duty of those in health, to visit and assist their sick and distressed neighbours.

September was pleasant, dry, and clear ; the wind was westerly twenty-four days ; there were four days of rain. There was a white frost on the 20th of this month ; on the 26th a more severe one, which killed the more tender vegetables. Until this period, the epidemic raged with the greatest violence ; the new cases were from twenty to five and twenty daily, sometimes twice that number. But the frost increasing in severity, they were reduced in the first week of October to three and four a day. This change in the weather, which so suddenly checked the prevalence of the disease, proved very injurious to the sick and convalescent. The symptoms became more inflammatory ; determinations to the brain and

lungs were more frequent, requiring the free use of the lancet.

Notwithstanding the early frosts, a cherry tree in the town of Leesburg was in full bloom early in October.

It may probably be expected, that I should in the first place give some account of the origin of this fever. I should be happy were I able to give a satisfactory one. Had it made its first appearance on the banks of the Potowmac, I might probably be induced to trace its origin to marsh miasmata, and the putrid exhalations arising from the rich sediment and vegetable matter left by the overflowing waters of the river in May and June, generally supposed by the best writers in Europe and America, to be the remote cause of bilious fever. But it is known that the fever made as early an appearance among the inhabitants of the mountainous parts of the country, where it would be difficult to find either marshes, low grounds, or putrid exhalations, as it did on the banks of the Potowmac; and raged there with rather greater violence and mortality. A gentleman, who cultivates an island in the Potowmac, kept his negroes in tolerable health during the summer, by giving them, on the first appearance

of indisposition, a solution of Glauber's salts, and tartar emetic; whereas in higher situations copious and repeated bleedings were generally necessary. Bilious fevers have generally been observed to prevail most, after hot and dry seasons; but the fever which carried off so many of the inhabitants of Loudoun, followed the wettest summer ever known by the oldest persons in the county. Even during the prevalence of the epidemic, we had seasonable rains. We cannot therefore trace its origin to a hot and dry season. On this subject Doctor Rush has offered an opinion well deserving attention. He supposes, in one of the volumes of his printed works, that under such circumstances as those I have mentioned, the fever is owing to temporary putrefaction produced on the high grounds by the unusual quantity of water that has fallen; or else, to the marsh miasmata from the low grounds being arrested by the summits of the hills, as is every day the case with vapours. This opinion is confirmed by many facts, to be met with in the writers of the East and West Indies. The tops of some of the mountains in those parts of the world, are found to be very unhealthy; and it is obvious to common observation that they are generally covered

with mists, which arise from the vallies below. I have also frequently heard it mentioned as a singular circumstance, that families who lived immediately adjoining a marsh were healthy; while others on the surrounding eminences were often affected by disease.

In the month of July, the prevailing complaint was a remittent bilious fever. About the 20th of the month, the symptoms became more violent and inflammatory; the head-ach and pains in the loins and limbs were more severe; the patient complained of great oppression of the breast and sickness of the stomach....great quantities of bile were thrown up....the countenance was flushed....the eyes inflamed....the pulse was generally full and hard. The patient was often delirious during the paroxysm. If these symptoms were not speedily relieved by copious bleeding, and powerful evacuants, death soon closed the scene.

But generally the disease came on with more moderation. The patient felt weary, complained of a dull head-ach, of slight pains in his loins and limbs, of loss of appetite; chills and fever soon succeeded. Timely medical aid frequently checked these symptoms, and prevented a more severe

attack. The fever would go off, and apparently an intermission take place. Sometimes the patient would walk out the next day, and endeavour to attend to his business. The chill and fever on the second day were often slight. This apparent intermission led many persons into a fatal error. It induced them to believe the disease to be nothing more than the common ague and fever, which could be cured by large doses of bark. But during this remission, as it really was, there was a considerable tenseness of the pulse, which was increased by the bark. If the patient persisted in the use of this medicine, the fever became highly inflammatory and fatal in several instances. On the third day, the chill and fever attended with all the distressing symptoms, returned with increased violence, and on the following day would again be more moderate. In a few instances the disease continued in this way for a considerable time, without any symptoms alarming to the patient. But even in these moderate attacks, the fever if neglected, or improperly treated, increased rapidly to the great hazard of the patient's life.

The habit of the body was generally costive; sometimes extremely so, and attended with severe

colic. In this situation a boy took 60 grs. of jalap and 30grs. of calomel in the course of twelve hours, before he was relieved; larger doses were sometimes necessary. The discharges from the bowels were extremely fetid and bilious, and often of a very dark colour. Those from the stomach were mostly bilious.

The oppression of the præcordia, and constant nausea and retching, proved fatal to an old lady: her fever was moderate.

Many complained of a soreness of the stomach; the slightest touch was painful. Some were afflicted by malignant ulcers in their groin and other parts of the body, which proved fatal in three instances. Sometimes the sores made by blisters became gangrenous, and extremely difficult to heal. In one instance a mortification came on after such an application to the back, and the patient died. She applied the plaister without medical advice.

Children were often seized with convulsions. They were generally relieved by bleeding, evacuates, and the warm bath. Several were afflicted with the hooping-cough, accompanied by all the violent symptoms of the bilious fever; to some of these it proved fatal. There were two cases

of croup, both attended with bilious stools, and other symptoms of the prevailing fever....two lovely girls, sisters, were taken nearly at the same time; and both fell victims to the combined attack of these two dreadful diseases.

The treatment of this fever was in general conformable to the most improved practice of the present day. When it came on with great nausea, &c. a mercurial emetic of 10grs. of calomel, and 1 1-2 or 2grs. of tartar emetic, was given first, in preference to a cathartic, and even before bleeding. But in general, from twelve to twenty ounces of blood were first taken from the patient, according to the fulness and hardness of the pulse, and the violence of the fever; and sometimes more. Then either a mercurial emetic, or a full dose of jalap and calomel, 20grs. and 10grs. was directed. The bleeding, and one or two purgatives were often sufficient to check the fever, and restore the patient to health. But it was too often necessary to bleed freely a second, a third, a fourth, and even a fifth time, before the pulse could be reduced, and the fever subdued.

If the first dose of medicine did not act on the bowels in a few hours, its operation was assisted by small doses of jalap and calomel, 6grs. of

the former with 2grs. of the latter, given every two hours ; and when the desired effect was produced, a constant discharge was kept up by the same means, as long as the evacuations continued fetid and bilious, and until the symptoms of fever abated.

But the pulse was not always full and hard. In some cases the physician, from its state, would almost doubt the propriety of drawing blood, if a knowledge of the nature of the epidemic and experience had not taught him not to trust to appearances ; that the pulse, although it appeared weak and depressed, would rise after the use of the lancet. The want of this knowledge too frequently restrained its use to the destruction of the patient.

The use of all animal food and spirituous liquors was forbidden, and a proper vegetable diet recommended.

The usual remedies to excite perspiration, to abate the burning heat, to relieve the deadly sickness of the stomach, &c. were often prescribed ; but they seldom or never afforded relief before the stomach and bowels were cleansed.

During the continuance of the inflammatory stage, blisters were very injurious. So violent

was every kind of inflammation, that ptyalism was a dangerous expedient. It was seldom tried except in the commencement of the epidemic, and in desperate cases.

The fever under this treatment generally abated, and a complete intermission ensued; when the columbo and bark were useful. But experience taught the necessity of caution in administering the bark. It proved injurious to many in the early part of their convalescence. A lady was distressed by great sickness and puking of bile from the first attack of the fever, and during the course of it with a burning heat in her stomach, and intense thirst. She was bled copiously and repeatedly; the jalap and calomel were given at first in full doses, and afterwards in small doses every two hours, which occasioned a severe ptyalism. But the sickness and puking still continued. The discharges from the stomach were at one time nearly as dark as coffee grounds. After a long and painful illness she began to mend. As she was extremely reduced, it was thought the bark would be serviceable. It was tried in various ways; in no one was it useful for a considerable time. It irritated the stomach, and induced sickness and fever.

I experienced its injurious effects myself. After great fatigue and exposure to the night air, I had a severe chill; an intense head-ach and high fever soon came on. It was treated in the usual way....after some days an apparent intermission took place. Anxious to attend to business, I was induced to take a dose of bark. Although it remained but a few minutes on the stomach, it occasioned extreme sickness and shuddering, which were immediately followed by a severe chill and fever. Another dose was tried the next morning, and the morning after. At each time it produced excessive sickness, and brought on the chill and fever four hours sooner than usual. After an interval of several days, during which the paroxysms became gradually milder and the pulse quite soft, recourse was again had to bark in wine, with the happiest effects. In this stage of the fever, blistering was often very useful.

This epidemic, which carried off so many in the bloom of life, was very much under the control of medicine. Very few of the great numbers who were taken, fell victims to its violence, when medical aid was obtained in due time; but this was often impossible. The physician after riding the whole day, would find on his return

in the evening, his shop crowded with people waiting for him. Their entreaties for assistance, a sense of duty and humanity, would compel him again to mount his horse, and ride until midnight, and often all night. These exertions were repeated day after day, until worn down with fatigue he could no longer make them. Many of course were lost for want of medical aid.

But, though greatly under the control of medicine, unfortunately it was not entirely so. Vain were the earliest and the most strenuous exertions, to save the lives of some miserable victims to the ungovernable rage of the disease. A stout man in the prime of life, was copiously bled soon after the attack; and five times afterwards. He took large doses of jalap and calomel, and other medicines; yet his fever continued high, and his pulse full until within a few hours of his death. For some days before this event, he was afflicted with a most painful, burning heat in his stomach, an intense thirst, a distressing sensation of choking, and a rising of acrid matter in his throat, which occasioned a continual spitting. His misery was greatly increased, by an almost constant hickup. When the operation of medicine required him to be raised, he frequently faint-

ed. A blister was applied to his stomach, without relieving him. The day before his death, the sore assumed an unfavourable appearance, being covered with livid streaks and spots. On the morning of the day on which he died, he thought himself better. The painful symptoms were greatly abated. He was soon after alarmed at the dark colour of some matter like coffee grounds, which he threw up; but as he continued easier than he had been, the alarm soon went off. About three o'clock, P. M. his mind was somewhat deranged; but he knew his friends and attendants, talked freely to them, and said he was much relieved. But this was no more than the deceitful calm, which often precedes dissolution. On being raised an hour after he fainted, and died before midnight.

Mr. Amos Thompson, a respectable clergyman, who spent much of his time in visiting and assisting the sick, had, during the early part of the illness of the patient whose case has been just related, devoted great part of his nights and days in attendance on him. Feeling much indisposed he returned home. Soon after, he was suddenly taken ill, and fell from his chair. Medical aid could not save him; he died within twenty-four hours.

Fifty ounces of blood were taken from him, in the course of the forenoon; his pulse becoming stronger by the loss. His sudden death was not attributed to any contagion received during his attendance on the sick. The fever was not believed to be contagious.

Although the unconquerable violence of the disease too often deprived the patient of his life, more frequently this was occasioned by his own folly and imprudence. It frequently happened, that on being bled freely, and taking a few cathartics, he found himself relieved from the urgent symptoms of the disease. But too early an attention to business, or the too eager indulgence of a keen appetite, invited a return of the fever, with such force as to baffle every attempt to save him. From these and other causes, relapses were remarkably frequent. In some cases, eruptions appeared about the mouth and other parts of the head; they were frequently symptoms of a favourable termination.

In these details, I have perhaps been rather tedious. My object being to convey a clear idea of the fever which prevailed in the county of Loudoun, and of the manner in which it was treated, I have confined myself pretty closely to

a plain history of it, without advancing opinions of my own, or quoting those of others. I have not thought it necessary to swell this essay with enquiries, whether the burning fever of Hippocrates, Aretæus, and others, and the bilious fever of the present day be the same; or whether the fever, which afflicted the inhabitants of Loudoun, resembles the yellow fever of the West Indies, and the sea ports of our own country. I have avoided these fashionable digressions. When stating the great advantage experienced from early and copious bleeding in this fever, and the necessity of repeating the operation, according to the state of the pulse and violence of the symptoms, I did not think it necessary to cite the authority of Pringle, Mosely, and many other physicians to justify the practice; to shew that it facilitates the action of calomel on the bowels, promotes perspiration, relieves the oppression of the breast, and often the sickness of the stomach. It is well known, that when the present mode of treating bilious fever was first recommended by our much respected professor to his suffering fellow citizens, it was warmly opposed by many very respectable physicians, as novel and dangerous; and that there was a general prejudice against it. To remove

these prejudices; to prove the mode recommended to be neither novel nor dangerous, but to have been advised by many celebrated physicians, it was necessary to quote authors, ancient and modern. But this necessity no longer exists; happily these prejudices are removed. Experience has convinced us that this mode of treating bilious fever, when attended with inflammatory symptoms, has saved the lives of thousands of our fellow citizens. At this period therefore to quote authorities to justify it, would be as unnecessary as to demonstrate a self evident proposition.

As the effects of this disease on the different parts of the human system, so nearly resemble the effects of the fever, that has of late years been so destructive in many parts of America; and as these have been so accurately recorded by an eminent physician, I have declined particularly enumerating them. But they may in a great measure be collected from the history I have given.

It may not be improper to observe, that the epidemic, which was so highly inflammatory in many parts of Loudoun, extended itself to several of the neighbouring counties, Fairfax, Prince William, and Fauquier, and beyond the Blue ridge; but generally under a milder form. Par-

ticularly beyond the Blue ridge, the lancet was seldom necessary. Emetics, cathartics, and diaphoretics were generally found sufficient to moderate the symptoms; when a liberal use of bark, wine, and opium completed the cure. Blistering was an advantageous practice.

I will close with the observation, that happily the fever was not found to be contagious. There were none of those distressing scenes which disgrace human nature; the sick were in no instance deserted. Where whole families were affected, as was too often the case, their neighbours without apprehension of danger visited them, and rendered them every assistance in their power. This duty was so faithfully performed, that the labours of the field were partially suspended, to the great detriment of these benevolent people.

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